

4 arrangement for detecting a shaft break in a rotor of a
5 first turbine (10), ~~particularly a medium pressure turbine,~~
6 whereby a second turbine ~~(11), particularly a low pressure~~
7 ~~turbine,~~ (11) is positioned downstream of the first
8 turbine, characterized in that ~~[[an]]~~ a mechanical operator
9 element (16) is positioned between the rotor of the first
10 turbine (10) and a stator of the second turbine (11)
11 radially inwardly relative to a gas flow channel, and in
12 that a sensor element (21) is guided in the stator of the
13 second turbine (11), wherein the mechanical operator
14 element is linearly slidably arranged between the rotor of
15 the first turbine and the sensor element, and is located
16 adjacent to the rotor such that the rotor will strike the
17 operator element and linearly slide the operator element
18 with a linear sliding motion toward the sensor element in
19 the event of the shaft break, and wherein the sensor
20 element is arranged and adapted to convert the linear
21 sliding motion of the operator element in order to convert
22 ~~a shaft break detected by the radially inwardly positioned~~
23 ~~operator element (16)~~ into an electrical signal and to
24 transmit ~~[[this]]~~ the electrical signal to a switching
25 element ~~which is~~ positioned radially outwardly relative to
26 the gas flow channel on a housing of the gas turbine.

1 26. (Previously presented) The gas turbine of claim 25,
2 characterized in that the operator element (16) is
3 positioned between a last rotor blade ring of the first

4 turbine (10), as seen in the flow direction, and a first
5 guide vane ring of the second turbine (11), as seen in the
6 flow direction.

1 27. (Previously presented) The gas turbine of claim 26,
2 characterized in that the operator element (16) is
3 positioned radially inwardly and neighboring to a rotor
4 disk (12) of the last rotor blade ring, as seen in the flow
5 direction, of the first turbine (10).

1 28. (Previously presented) The gas turbine of claim 25,
2 characterized in that the operator element (16) is guided
3 in a radially inwardly located sealing structure (13) of
4 the stator of the second turbine (11) in an axial direction
5 or in the flow direction, whereby the operator element (16)
6 is fixed in the axial direction by a shearable pin (18).

1 29. (Previously presented) The gas turbine of claim 25,
2 characterized in that the sensor element (21) is guided in
3 a radial direction in the stator of the second turbine
4 (11), and is withdrawable out of the stator of the second
5 turbine (11) in the radial direction.

1 30. (Previously presented) The gas turbine of claim 29,
2 characterized in that the sensor element (21) is guided in
3 a first guide vane ring of the second turbine (11) as seen
4 in the flow direction.

1 31. (Previously presented) The gas turbine of claim 28,
2 characterized in that the sensor element (21) cooperates,
3 at a radially inwardly positioned end, with the operator
4 element (16) in such a way that, in response to a shaft
5 break, the operator element (16) is moved onto the sensor
6 element (21) and hits the same while the pin (18) is
7 sheared off, whereby the sensor element (21) generates
8 thereof an electrical signal that represents a shaft break.

1 32. (Previously presented) The gas turbine of claim 25,
2 characterized in that the sensor element (21) is
3 constructed as an impact sensor the structure of which is
4 changed by an impact of the operator element (16) onto the
5 same.

1 33. (New) The gas turbine of claim 25, wherein the gas turbine
2 is an aircraft engine, the first turbine is a medium
3 pressure turbine, and the second turbine is a low pressure
4 turbine.

1 34. (New) The arrangement of claim 17, wherein the gas turbine
2 machine is an aircraft engine, the first turbine is a
3 medium pressure turbine, and the second turbine is a low
4 pressure turbine.

1 35. (New) A gas turbine machine comprising:

2 a first turbine including a rotor shaft and a first
3 turbine rotor connected to said rotor shaft;

4 a second turbine including a second turbine stator
5 arranged downstream from said first turbine rotor with
6 respect to a gas flow direction through a gas flow channel
7 of said gas turbine machine;

8 a mechanical operator element that is linearly
9 slidably mounted to said second turbine stator, and that
10 has a first end facing toward and exposed to but spaced
11 apart from said first turbine rotor with a spacing gap
12 therebetween, and that has a second end opposite said first
13 end and oriented downstream with respect to the gas flow
14 direction; and

15 an electromechanical sensor element mounted to said
16 second turbine stator adjacent to said second end of said
17 mechanical operator element;

18 wherein said mechanical operator element is arranged
19 such that, if said rotor shaft breaks, then said first
20 turbine rotor will strike said first end of said mechanical
21 operator element and slide said mechanical operator element
22 against said sensor element, and responsive thereto said
23 sensor element is adapted to produce an electrical signal.

1 36. (New) The gas turbine machine according to claim 35,
2 wherein said mechanical operator element is located

3 radially inwardly relative to said gas flow channel with
4 respect to a central axis of said gas turbine machine.

1 37. (New) The gas turbine machine according to claim 35,
2 wherein said mechanical operator element is linearly
3 slidable in an axial direction parallel to an axis of said
4 gas turbine machine, and said sensor element is linearly
5 radially guided in said second turbine stator to be
6 linearly radially removable out from said gas turbine
7 machine in a direction radial to said axial direction.